PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants:	Masahiro YAMAMOTO, *et al.*
Serial No.:	10/788,720
Filed:	27 February 2004
Title:	SHIFT CONTROL SYSTEM IN BELT-TYPE CONTINUOUSLY VARIABLE TRANSMISSION
Group Art Unit:	3682
Examiner:	V. Johnson
Attorney Docket No.:	KIOI:039
Confirmation No.:	6791

VIA EFS-WEB
05 December 2008

COMMISSIONER FOR PATENTS
P.O. BOX 1450
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AMENDED APPEAL BRIEF

Sir:

This Amended Appeal Brief substitutes the Appeal Brief filed 24 January 2008.

Real Party in Interest - Rule 41.37(c)(1)(i)

The real party in interest is JATCO LTD of Japan. See Reel/Frame 015033/0448.

Related Appeals and Interferences - Rule 41.37(c)(1)(ii)

No pending appeal, interference, or judicial proceeding that may be related to, directly affect or be directly affected by or have bearing on the Board's decision in this appeal is believed to exist. Appellants will identify any such appeal, interference, or judicial proceeding if it exists.

Status of Claims - Rule 41.37(c)(1)(iii)

Pending claims: 1-5

Canceled claims: none

Withdrawn claims: none

Rejected claims: 1-4

Allowed claim: 5

Appealed claim: 1.

Status of Amendments - Rule 41.37(c)(1)(iv)

No claim was amended after the Final rejection.

A Request for Reconsideration, however, was filed on 23 December 2007.

The examiner issued an Advisory Action on 11 January 2008 maintaining the final rejection.

Summary of Claimed Subject Matter - Rule 41.37(c)(1)(v)

A vehicle shift control system (see Fig. 1) for a V-belt type continuously variable transmission (1) has a V-belt (4) wound between a primary pulley (2) of an input side connected to an engine (5) and a secondary pulley (3) of an output side (8). See Fig. 1 and page 4, line 21 to page 5, line 4 of the present specification.

A primary pulley pressure (Ppri) acting on the primary pulley (2) and a secondary pulley pressure (Psec) acting on the secondary pulley (3) are generated respectively with a line pressure as an original pressure. See page 6, lines 1-3.

A shift actuator (step motor (27)) is operable to an operating position corresponding to a target gear ratio. See page 8, lines 4-9. The differential pressure is generated between the primary pulley pressure (Ppri) and the secondary pulley pressure (Psec) to change the widths of V-shaped grooves of the primary pulley (2) and the secondary pulley (3) so that the actual gear

ratio, which is obtained from speed ratio of the primary pulley (2) and the secondary pulley (3), becomes equal to the target gear ratio. See page 8, lines 15-27.

The shift control system includes shift control means for controlling the shift actuator (27). The shift control means corresponds to the shift control section (12b). See Fig. 2 and page 13, lines 25-27.

The shift control system further includes speed detecting means for detecting the vehicle speed. The speed detecting means corresponds to a secondary pulley rotation sensor (14). See Figs. 1 and 2, and page 13, lines 19-21.

The shift control system further includes downshift detecting means for detecting a downshift. See page 13, lines 21-22, which states that step 303 constitutes the downshift detecting means, and page 11, lines 1-4, which states that the shift control section (12b) carries out the flow chart of Fig. 3. The shift control section (12b) determines whether the downshift is completed in step 303. See Fig. 3 and page 12, lines 1-5. Thus, the downshift detecting means corresponds to the shift control section (12b).

The shift control system further includes idle state detecting means for detecting an idle state of the engine. The idle state detecting means corresponds to an idle switch (30). See Figs. 1 and 2, and page 13, lines 22-24.

Referring to Fig. 4, the shift control means (shift control section (12b)) limits the operating speed of the shift actuator (step motor 27) to prevent slippage of the V-belt when:

(1) the speed detected by the speed detecting means (secondary pulley rotation sensor (14)) is less than a first predetermined speed (see Fig. 3, step 300, and page 11, lines 5-8);

(2) the downshift detecting means (shift control section (12b), step 303) detects the downshift (see Fig. 3, step 303, and page 13, lines 3-5); and

(3) the idle state detecting means (idle switch (30)) does not detect (i.e., idle switch off) the idle state of the engine (see Fig. 3, step 302, and page 13, lines 1-3).

See page 13, lines 11-17, where it explains that, from period t2, when the condition of the steps 300-303 in Fig. 3 are all established, to period t6, when the conditions of the steps 305 to 307 are all established, the shift control section (12b) limits the operating speed of the step motor (27) by lowering the shift speed during periods t2 to t6.

Grounds of Rejection to be Reviewed on Appeal - Rule 41.37(c)(1)(vi)

1. Whether claim 1 would have been anticipated under 35 U.S.C. § 102(b) by Yamamuro (USP 4,589,071).

Appellants' Arguments - Rule 41.37(c)(1)(vii)

1. YAMAMURO COMPLETELY LACKS AT LEAST THE SHIFT CONTROL MEANS FOR LIMITING THE SHIFT-ACTUATOR OPERATING SPEED TO PREVENT SLIPPAGE OF THE V-BELT WHEN 1) THE DETECTED SPEED IS LESS THAN A FIRST PREDETERMINED SPEED, 2) DOWNSHIFT DETECTING MEANS DETECTS A DOWNSHIFT, AND 3) IDLE STATE DETECTING MEANS DOES NOT DETECT THE IDLE STATE OF THE ENGINE, AS SET FORTH IN INDEPENDENT CLAIM 1.

In the Final rejection, although the examiner admits that Yamamuro fails to disclose limiting slippage of the V-belt, the examiner asserts that Yamamuro device is "capable" of performing that function without providing any support. According to the examiner, because Yamamuro is capable of performing the claimed function, Yamamuro anticipates claim 1. Appellants disagree at least for the following reasons.

First, there is no enabling disclosure anywhere in Yamamuro for preventing slippage of the V-belt, let alone carrying out in the manner as set forth in claim 1. In this respect, appellants requested the examiner to explain how Yamamuro would prevent belt slippage. The examiner has yet to explain how Yamamuro's controller 300 would control the V-belt slippage. Note that Yamamuro is completely silent regarding any belt slippage.

Second, claim 1 calls for more than simply limiting slippage of the V-belt. Indeed, claim 1 calls for limiting the shift-actuator operating speed upon meeting the three conditions. Note that claim 1 calls for all three identified conditions to exist to limit the shift-actuator operating speed.

Third, the shift control means is drafted as a "means-plus-function" limitation. At least in this respect, in order for Yamamuro to anticipate, it must explicitly disclose the claimed functional limitation of limiting the shift-actuator operating speed to prevent slippage of the V-belt or inherently carry out this function while all three conditions as set forth in claim 1 are met. Appellants submit that Yamamuro simply has no corresponding claimed shift control means. As Yamamuro simply would not have disclosed or taught at least the claimed shift control means, appellants submit that the anticipation rejection is improper and deficient.

Conclusion

Appellants submit that claim 1 patentably distinguishes over Yamamuro. Appellants thus urge the Board to reverse the rejection of claim 1 (as well as claims 2-4 since these claims depend from claim 1).

Respectfully submitted,

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05 DECEMBER 2008
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CLAIMS ON APPEAL (CLAIM APPENDIX) - Rule 41.37(c)(1)(viii)

1. A shift control system for a V-belt type continuously variable transmission of a vehicle in which a V-belt is wound between a primary pulley of an input side connected to an engine and a secondary pulley of an output side, a primary pulley pressure acting on the primary pulley and a secondary pulley pressure acting on the secondary pulley are generated respectively with a line pressure as an original pressure, and a shift actuator operable to an operating position corresponding to a target gear ratio, wherein a differential pressure is generated between the primary pulley pressure and the secondary pulley pressure to change widths of V-shaped grooves of the primary pulley and the secondary pulley so that an actual gear ratio that is obtained from speed ratio of the primary pulley and the secondary pulley becomes equal to the target gear ratio, the shift control system comprising:

shift control means for controlling the shift actuator;

speed detecting means for detecting a speed of the vehicle;

downshift detecting means for detecting a downshift of the belt-type continuously variable transmission; and

idle state detecting means for detecting an idle state of the engine,

wherein when the speed detected by the speed detecting means is less than a first predetermined speed, the downshift detecting means detects the downshift, and the idle state detecting means does not detect the idle state of the engine, the shift control means limits an operating speed of the shift actuator to prevent slippage of the V-belt.

2. The shift control system according to claim 1, wherein:

an intermediate target gear ratio is set between the actual target gear ratio and the target gear ratio, the intermediate target gear ratio being gradually brought close to the target gear ratio,

the shift control means controls the shift actuator so that the actual gear ratio reaches the intermediate target gear ratio, and

the downshift detecting means detects the downshift when a difference is more than a predetermined value between the intermediate target gear ratio and the actual gear ratio.

3. The shift control system according to claim 1 or 2, wherein the shift control means lowers an operating speed of the shift actuator when a speed detected by the speed detecting means is less than an upshift determination vehicle speed.

4. The shift control system according to one of claim 1 or 2, further comprising:

gear ratio comparing means for comparing the actual gear ratio and the target gear ratio,

wherein when the speed detected by the speed detecting means is equal to or more than a second predetermined speed, the downshift detecting means detects a finish of the downshift, and the gear ratio comparing means determines that the actual gear ratio is closer to a low side relative to the target gear ratio, the shift control means finishes limitation of the operating speed of the shift actuator.

5. The shift control system according to claim 3, further comprising:

gear ratio comparing means for comparing the actual gear ratio and the target gear ratio,

wherein when the speed detected by the speed detecting means is equal to or more than a second predetermined speed, the downshift detecting means detects a finish of the downshift, and the gear ratio comparing means determines that the actual gear ratio is closer to a low side relative to the target gear ratio, the shift control means finishes limitation of the operating speed of the shift actuator.

EVIDENCE APPENDIX - Rule 41.37(c)(1)ix)

None.

RELATED PROCEEDINGS APPENDIX - Rule 41.37(c)(1)(x)

None.